ENVIRONMENTAL MANAGEMENT AND PERFORMANCE STANDARDS AND MEASURES FOR FUTURE 400 SERIES HIGHWAYS

OVERVIEW

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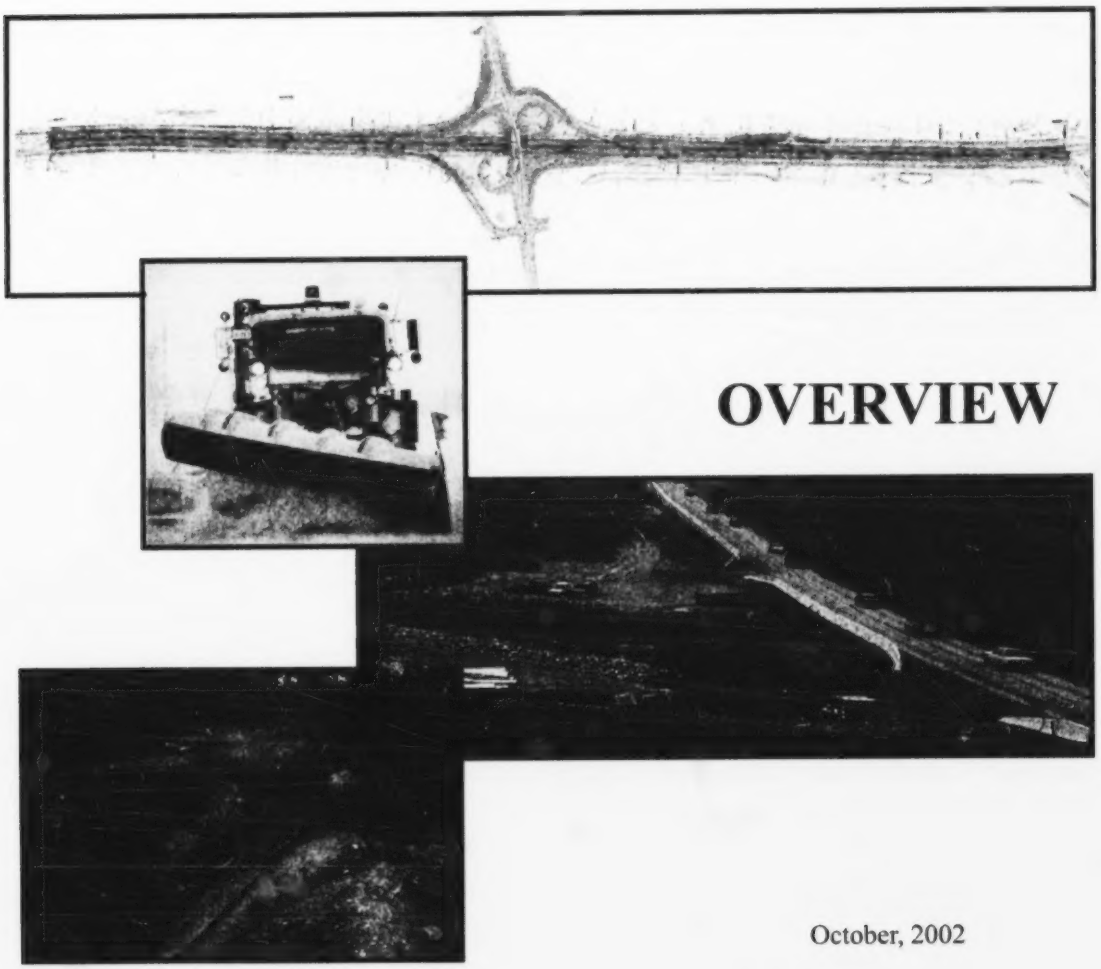

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Highway Program Delivery

The Ontario Ministry of Transportation (MTO) is the provincial agency responsible for Ontario's provincial highway program. For the past couple of decades, MTO's role in highways has been in transition from hands-on planning, design and contract supervision, to a more managerial role. Today, the ministry's activities involve setting strategic goals, objectives and standards, and ensuring that they are met. Increasingly, the hands-on business of planning, designing, and building highways, and in some cases, operating and maintaining them, will be carried out by the private sector.

Changes have also occurred with respect to environmental legislative requirements, public expectations and the state-of-the-art in environmental practices.

The result is a need to develop an up-to-date set of environmental standards and practices for future 400 series highways that reflects changes to both highway program delivery and environmental requirements.

Development of Environmental Management and Performance Standards and Measures

MTO has embarked upon the Environmental Standards Project to develop effective ***Environmental Management and Performance Standards and Measures***. This project will take a systematic and comprehensive approach to ensuring that future 400 series highways incorporate appropriate environmental considerations into the stages of their development and management, including design, construction, operation and maintenance.

The Environmental Standards Project will provide a comprehensive environmental framework for future 400 series highways in Ontario thereby increasing certainty about environmental protection for proponents and agencies. Obtaining the buy-in of environmental agencies and the public to a systematic approach to environmental protection is absolutely critical to the project's success, as there can be no certainty without the acceptance of the regulators and the public.

Throughout this project, MTO will work with a number of federal and provincial agencies to co-ordinate environmental protection and management requirements and processes as they relate to future 400 series highways.

Ultimately, this project will chart a new path to improved co-operation among 400 series highway proponents, government agencies and environmental regulators in Ontario thus enhancing environmental stewardship, which is vital to the future success of the provincial highway program.

Purpose

The purpose of the Environmental Standards Project is to create a more efficient means of ensuring that future 400 series highways are developed in a way that meets federal and provincial environmental requirements.

Goals

The overall goal of the project is to integrate environmental protection throughout the life of future 400 series highways. To ensure this integration, the environmental standards will be linked to relevant legislation and policies, and the highway activities to which they apply. Furthermore, the environmental standards will be organized by the various highway stages to make them easier to find and use.

The specific goals of the project are as follows:

- To provide a concise, yet comprehensive way to communicate and apply federal and provincial environmental legislative requirements, guidelines and policies to those who design, construct, operate and maintain future 400 series highways;
- To better standardize the 'state-of-the-art' in environmental practices throughout the highway stages, reflecting current environmental best management practices from Ontario and other jurisdictions in North America;
- To provide a more straightforward approach to determining whether or not federal and provincial environmental legislative and policy requirements are being met during highway development and management; and
- To establish clear roles for environmental stewardship in highway development and management.

Scope

The scope of the Environmental Standards Project is very broad and is intended to address all environmental issues associated with future 400 series highways. The project will address these issues at the following stages of highway development and management:

- **Preliminary Design / Detail Design Stage:** The preferred highway design is selected, refined and made ready for construction;
- **Construction Stage**: The highway is built and made ready for traffic; and
- **Operation / Maintenance Stage**: The highway is open to traffic. Maintenance, including routine repairs and snow and ice control, are undertaken.

Approach

To achieve the goals stated above, MTO is developing environmental performance standards and measures, and an environmental management system suitable for application to future 400 series highways.

The four key components to this approach are as follows:

- **Environmental Quality Standards (EQSs):** Highway-related federal and provincial environmental requirements that must be met;
- **Environmental Best Practices (EBPs):** Procedures that can be used to achieve the EQSs;
- **Measures for Environmental Performance (MEPs):** Means for determining the degree to which the EQSs are being met; and
- **Environmental Management System (EMS):** A framework for private sector proponents to achieve substantive compliance with provincial and federal environmental requirements, while maintaining a high level of due diligence.

These four components are discussed in more detail below. When these components are applied to future 400 series highways, they will provide a greater degree of environmental protection by providing clear information on the environmental requirements, options for how these requirements can be addressed and ways to measure the degree of environmental protection being achieved.

Key Components

Environmental Quality Standards (EQSs)

The regulatory requirements, with which highway proponents must comply, range from formal federal and provincial laws, regulations, policies and guidelines to less formal agreements and policies. Since some requirements are written in a general manner, their specific application to the various highway stages and activities may be open to interpretation. In addition, the variation of the form and content of these requirements can cause opinions to vary as to their exact nature or meaning.

The future of environmental protection on 400 series highways will be enhanced through the establishment of a clear statement of the regulatory requirements that apply to highway development and management. This statement will take the form of a comprehensive set of Environmental Quality Standards (EQSs). The cornerstone of the Environmental Standards Project, an EQS is defined as an environmental requirement that must be met by proponents of future 400 series highways. EQSs will be as concisely and specifically defined as possible. Moreover, the various environmental agencies

responsible for overseeing environmental legislation in Ontario must agree with both the content and application of the EQS.

The EQSs will consist of those environmental requirements that have been identified, discussed and clarified by the environmental agencies and agreed to by MTO. The corresponding legislation and policies, from which they are derived, as well as the highway activities to which they apply, will be clearly referenced.

New environmental requirements that are currently under development or review will be identified as future or potential EQSs and documented separately. Furthermore, a protocol for amending and updating the EQSs as environmental requirements change, will also be developed through discussions with the regulatory agencies and MTO.

At the same time that the EQSs are being developed, methods by which they can be achieved and by which compliance with them can be verified, will be discussed and documented through the development of Environmental Best Practices (EBPs) and Measures for Environmental Performance (MEPs). The amendment protocol developed for EQSs will be designed so that it may also be used to amend and update EBPs and MEPs.

Environmental Best Practices (EBPs)

Environmental Best Practices (EBPs) will be a "toolbox" of practical methods for achieving the EQSs for each highway activity. In general, EBPs will consist of proven techniques that have a successful track record of protecting the environment. An example of an EBP might be an erosion and sediment control design guideline to be used at the design stage. At the construction stage, EBPs might include a sediment control fence installation and maintenance procedure, and a flow check installation and maintenance procedure. There may be multiple EBPs for some highway activities, while other activities may only have a single EBP. EBPs will include design practices and quality control practices, as well as construction, operation and maintenance techniques. A method for adapting the toolbox of EBPs to meet specific highway needs will also be prepared.

Measures for Environmental Performance (MEPs)

EQSs describe the environmental requirements that must be met throughout the highway stages, while EBPs set out practical means of achieving the EQSs for each highway activity. However, it is also important to verify that the environmental requirements are being achieved. To accomplish this, Measures for Environmental Performance (MEPs) will also be developed. These will set out how the highway activities can be inspected and monitored to identify the degree to which the EQSs are being met and determine if the EBPs are working. Like EBPs, a method will be prepared for adapting the MEPs to specific highway needs.

An Environmental Management System for Future 400 Series Highways

In Ontario, highway proponents must meet regulatory requirements for environmental protection during all highway stages. Meeting these environmental protection requirements represents a significant financial and human resource commitment for regulators and proponents alike.

In recent years, many private sector companies, representing a variety of industries, have developed environmental management systems (EMS) to identify and manage the environmental impacts of their activities. The Environmental Standards Project includes the development of an EMS for private sector proponents who may be involved in the development and management of future 400 series highways. Adopting an EMS will:

- Enhance compliance with environmental laws and regulations;
- Encourage private sector proponents to improve environmental stewardship; and
- Establish clear roles for environmental stewardship in highway development and management.

The EMS will provide a framework for achieving environmental responsibilities and requirements so that environmental protection practices become integrated with the highway development and management process. The EMS document will outline an approach to:

- Setting environmental objectives and targets;
- Achieving these objectives and targets; and
- Demonstrating that the objectives and targets have been achieved.

The EMS will follow a "Plan, Do, Check and Act" model. This model will ensure that environmental concerns are systematically identified, controlled and monitored, and that improvements are made when required. The EMS will identify the environmental factors to be managed throughout the highway stages, the actions to be taken to manage those factors, the documentation of the actions actually taken, and the results of those actions. It will also provide a mechanism for reviewing the effectiveness of the actions taken, and provide a means by which the system can be improved over time.

The EMS framework will need to be adapted by private sector proponents for specific, future 400 series highways. Therefore, a method for adapting the EMS framework on a project-specific basis will be developed as part of this project as well.

In addition, to ensure that regulatory agency buy-in is maintained, a pre-agreed procedure for obtaining and maintaining environmental agencies' concurrence with the EMS will also be developed.

Organization and Use of Environmental Standards

The key components of the Environmental Standards Project described above, will be combined into functional documents for each highway stage. In other words, there will be documents for Preliminary Design / Detail Design that contain the Environmental Quality Standards (EQSs), Environmental Best Practices (EBPs) and Measures for Environmental Performance (MEPs) for this stage with direction on how to use the components. Similarly, there will be documents for Construction and for Operation / Maintenance.

The overall goal of the Environmental Standards Project is integration of environmental protection throughout the life of future 400 series highways. To this end, proponents and regulators alike will use the environmental standards in an integrated manner to take into account environmental commitments made in previous highway stages and to anticipate environmental needs of subsequent highway stages. For example, during planning, proponents and regulators will be able to use the documents for Preliminary Design / Detail Design to better understand:

- What the environmental requirements (EQSs) are for design;
- How designers will likely mitigate environmental impacts (EBPs); and
- How designers will likely measure the performance of the mitigation (MEPs).

This allows proponents and regulators to focus on planning issues. It also provides them with confidence on what issues will be considered during design and how they will be addressed. Similarly, designers will be able to consider the Construction documents and the Operation / Maintenance documents to make better design decisions, and constructors will be able to consider those for Operation / Maintenance to make better construction decisions. In addition, constructors will be able to use the documents for Preliminary Design / Detail Design during "field-fit" changes to designs, so as to understand and meet the intent of environmental considerations made during design.

Phased Development of Environmental Standards

The planning of some future 400 series highways is concurrent with the Environmental Standards Project. This overlap provides an ideal opportunity to develop and test the standards against real life 400 series highways. As such, the standards will be finalized before, and applied during, the design, construction, operation, and maintenance stages of these highways.

The Team Approach

It is crucial to the success of the Environmental Standards Project that federal and provincial environmental agencies and the public support the approach and the end results. An alignment of expectations is critical to ensuring that all participants share common goals.

To ensure agency involvement in the project, a Regulatory Liaison Committee (Committee) has been established. Representation on the Committee is drawn from those agencies that typically have the most interaction with highway undertakings during the Environmental Assessment process. The Committee will review all the EQSs, EBPs, and MEPs developed throughout the project at both the draft and final stages. Ongoing consultation with the agency technical specialists will occur throughout the project.

In addition, other agencies that are affected by or have an interest in the project will be consulted.

The ongoing support of environmental agencies is essential to the future application of the environmental standards developed throughout this project. Some of these standards will require modification to meet the needs of specific highways prior to application. Environmental agencies will need to be consulted to review and approve such modifications. Therefore, a protocol for this continued agency consultation and support will also be developed as part of this project.

Public Input

Public consultation on the Environmental Standards Project will occur through the Ontario Environmental Bill of Rights (EBR) Registry. Key components will be posted throughout the life of the project. A proposed schedule of the postings is presented below.

Proposed Environmental Bill of Rights Registry Posting Schedule

Posting	Proposed Date	Key Components
1	Fall 2002	• Overview – this document
2	Summer / Fall 2003	• Environmental Quality Standards, Environmental Best Practices & Measures for Environmental Performance for Design
3	Summer / Fall 2004	• Environmental Quality Standards, Environmental Best Practices & Measures for Environmental Performance for Construction and Operation / Maintenance
4	Summer / Fall 2004	• Environmental Management System

Benefits of the Project

This project will result in benefits for 400 series highway proponents, environmental agencies and the public. Many of these benefits will stem from the increased clarity of

the rules and expectations for environmental protection during highway development and management. These benefits will be enhanced when these rules and expectations are applied in a manner that considers previous commitments made and subsequent commitments needed to ensure continuity in environmental protection throughout the life of future 400 series highways. More specifically, the following benefits are expected.

Benefits to 400 Series Highway Proponents

- Greater clarity of environmental requirements
- Greater clarity of regulatory agency expectations
- Greater likelihood of environmental approval
- More timely project delivery
- Enhanced problem-solving, fewer conflicts
- Better public and agency relations
- Reduced delivery costs due to reduced risk
- Improved environmental stewardship
- Greater project consistency
- Greater certainty in project delivery
- Streamlined environmental assessment process as both proponents and regulatory agencies will have a better understanding of expectations and actions

Benefits to Environmental Agencies

- Enhanced documentation of environmental standards and techniques
- More comprehensive approach to environmental protection
- Increased opportunity for earlier input on highway projects
- Increased assurance of agency involvement
- Better understanding by 400 series highway proponents of agency interests and concerns
- More certainty that agency concerns will be addressed appropriately
- Broader commitment by 400 series highway proponents to environmental protection
- Better understanding of the relationship of predicted to actual environmental effects
- Streamlined environmental assessment process as both proponents and regulatory agencies will have a better understanding of expectations and actions

Benefits to the Public

- More opportunities to view and comment on environmental standards
- Greater certainty that environmental issues are being addressed
- Improved clarity on environmental accountability on future 400 series highways
- A healthier environment
- Greater transparency to the highway delivery process

Summary

MTO is developing a comprehensive set of environmental standards for future 400 series highways in cooperation with federal and provincial environmental agencies and the public. These standards will ensure that those responsible for designing, constructing, operating and maintaining future 400 series highways, clearly understand and fulfil their environmental responsibilities. They will also ensure consistency across highway projects. This includes consistency in the interpretation of environmental requirements and in the application of environmental protection measures.

The development of the standards is being phased to integrate with future 400 series highways. In this way, the standards can be applied as they are developed. In the end, all stakeholders and the environment will benefit from the increased clarity and application of the rules and expectations for environmental protection during highway development and management.